CLAIMS

1. A method of converting, in an image processor, from a first tri-color space to a second tri-color space, said method comprising the steps of:
reading color components of pixels of an image stored in a first tri-color space;
performing tri-linear conversion of said color components from said first color space to said second color space by executing a single interpolation in each cycle; and
storing said converted color components in a specific storage location.

2. The method of claim 1 wherein said step of performing tri-linear conversion includes the steps of:
looking up resultant transformation values in lookup tables for each of said pixel color components; and
performing linear interpolations on said transformation values.

3. The method of claim 2 wherein eight said transformation values are read from said look up tables, which require seven said linear interpolations.

4. The method of claim 3 wherein, of said seven linear interpolations, four are performed in a first dimension, two are performed in a second dimension, and one is performed in a third dimension.

5. The method of claim 1 wherein, for one color component of said pixels, said step of performing tri-linear conversion from said first color space to said second color space is completed in fourteen cycles, said performing step being repeated for each color component yet to be converted.

6. The method of claim 1 wherein said specific storage location is a dedicated buffer for each color component of said second tri-color space.

7. The method of claim 1 wherein said method is performed on-the-fly during a print process for a converted image.

8. The method of claim 1 wherein, if said first color space is the same as said second color space, said step of performing tri-linear conversion is bypassed.

9. The method of claim 1 wherein said first color space is L*a*b* form and said second color space is CMY form.

10. The method of claim 1 wherein said first color space is RGB form and said second color space is L*a*b* form.

11. The method of claim 10 wherein said step of performing color conversion is performed five times to produce two extra L* components for use in sharpening a converted image.

12. An image processor for converting a stored image from a first tri-color space to a second tri-color space, said image processor comprising:
a single cycle linear interpolation unit;
look up tables containing values for transforming color components from a first tri-color space to a second tri-color space; and
dedicated storage means for storing each of said second tri-color space color components.

13. The image processor of claim 12 further comprising a single address register and a single adder for addressing into said lookup tables.

14. The image processor of claim 12 further comprising six registers wherein two of said registers store values from said look up tables and wherein four of said registers store an output from said interpolation unit.